IN THE SPECIFICATION

Please amend the paragraph beginning at page 8, line 15, as follows:

--Further, the above Unexamined Patent Publication (Kokai) No. 10-31825 has disclosed a method of correcting a waveform (figure) of the regenerative signal by replacing a pit edge depending upon a recording power level. This shows that according to a change of signal characteristic, in a change of the watermark ~~patter~~ pattern allowable in the player, a laser power is slowly changed. However, there is a problem that the nonlinearity of the optical modulator must be specially considered.--

Please amend the paragraph beginning at page 25, line 19, as follows:

--Further, at this moment, the edge position correcting circuits 7A and 7B individually detect a change ~~patter~~ pattern of EFM modulation signal SB, and then, selectively output modulations signals SlA and SIB so as to reduce an interference between codes from an adjacent code in accordance with the change pattern.--

Please amend the paragraph beginning at page 27, line 4, as follows:

--In the rise edge correcting circuit 60A, 13 latch circuits 70A to 70M operated by the clock CK are connected in series, as shown in FIG. 7, and the EFM modulation signal SB is inputted to the series circuit. The rise edge correcting circuit 60A samples the EFM modulation signal SB at the timing of channel clock CK, and thereafter, detects a change ~~patter~~ pattern of the EFM modulation signal SB on the basis of the sampling results on continuous 13 points. More specifically, for example, in the case where a latch output "0001111000001" is obtained, it is possible to make the following decision; namely, the change pattern is a pattern in which a pit of a period 4T continues after a space of a period 5T. Likewise, in the case where a latch output "0011111000001" is obtained, it is possible to

make the following decision; namely, the change pattern is a pattern in which a pit of a period 5T continues after a space of a period 5T.--

Please amend the paragraph beginning at page 29, line 15, as follows:

--As described above, the rise edge correcting circuit 60A detects a pit ~~patter~~ pattern formed on an optical disk and a recording laser power over a range of period 12T using a basic period as a unit. Then, the rise edge correcting circuit 60A generates a rise edge signal SS in accordance with the recording pattern and the recording laser power.--

Please amend the paragraph beginning at page 48, line 2, as follows:

--In an optical information recording medium of this second embodiment, the first information is recorded by mainly changing a pit length and position, and the second information is recorded by mainly changing a pit width. The pit width for recording the second information is stepwise variable. The pit length and position are finely adjusted by a signal ~~patter~~ pattern recorded as a pit and a pit width. Accordingly, in the present invention, in addition to an information (first information) such as a music and a video determined based on the CD or DVD standards, it is possible to obtain a medium which records a second information which is not determined in the CD or DVD standards in the identical disk. Further, visibly recognizable graphic information such as characters and figures is recorded in a disk signal area (section) as a second information, and thereby, it is possible to provide a value added disk. In addition, the graphic information of the optical information recording medium of this embodiment is capable of more clearly confirmed as compared with the conventional method.--

Please amend the paragraph beginning at page 49, line 8, as follows:

--The second modulation circuit 180 has a construction as shown in FIG. 19. In this case, a PLL circuit 190 generates a channel clock CK which varies every the minimum change unit of the EFM signal SB, and then, supplies the channel clock CK to a signal overlapping circuit 191 and a timing correcting circuit 192. In the case where the second information SE is a logic "0", the signal overlapping circuit 191 outputs the second information SE as a signal SC without adding any modification to the inputted EFM signal SB. Conversely, in the case where the second information SE is a logic "1", the signal overlapping circuit 191 investigates a length of pit formed by a signal ~~patter~~ pattern of the inputted EFM signal, and then, if a decision is made such that a length of the formed pit is 9T or more, the signal overlapping circuit 191 makes a conversion such that a signal originally recorded as one pit into is replaced with a signal recorded as two pits and one space, and thus, outputs it as a signal SC.--

Please amend the paragraph beginning at page 50, line 20, as follows:

--FIG. 20 is a view to explain a construction of the signal overlapping circuit 191 for performing the signal conversion as described above. In FIG. 20, the EFM signal SB is operated by the channel clock CK, and is inputted to 13 latch circuits 200A to 200M which are connected in series. These 13 latch circuits 200A to 200M sample the EFM signal SB at a timing of the channel clock CK, and then, a change pattern of the EFM signal SB is detected from the sampling result on continuous 13 points. More specifically, for example, in the case where a latch output "0011111111100" is obtained, it is possible to make a decision that the change pattern is a ~~patter~~ pattern in which a pit having a length 9T is formed.--

Please amend the paragraph beginning at page 70, line 22, as follows:

--In order to explain the above problem, a characteristic shown in FIG. 28 is recited as an example. FIG. 28 shows a measurement example of a laser beam intensity of an optical acoustic modulator with respect to a driving voltage (Regarding the principle and characteristic of a variable optical modulator, please refer to Goodman. Introduction to Fourier Optics. ~~McGrow-Hill~~ McGraw-Hill, 1996.) In this example, when the driving voltage is 0.5 V, an inclination of the laser beam intensity has a sudden gradient; however, when the driving voltage is 1 V, the laser beam characteristic becomes the peak. When the driving voltage is 0.5 V, the same voltage step causes a sudden change of the laser beam intensity; however, when the driving voltage is 1 V, the laser beam intensity is unchanged.--

Please amend the paragraph beginning at page 72, line 25, as follows:

--Thus, this fourth embodiment provides an optical information recording apparatus which records a first information signal on an optical information recording medium by carrying out an on/off modulation of a laser beam source at a period of integer multiples of a predetermined basic period in accordance with a data to be recorded, and which records a change from a predetermined light intensity level to other light intensity level, which is obtained from a micro equal interval step such that an inclination of the light intensity becomes substantially linear with respect to a second information signal and time by changing a light intensity of the laser beam source, on the optical information recording medium, comprising measuring means for measuring a laser intensity of the modulated laser beam; control means for controlling a driving signal of the modulated laser beam; characteristic measuring means for measuring a characteristic of laser beam intensity with respect to a predetermined pair of amplitudes of the driving signal obtained by the measuring means and the control means; characteristic inverting means for carrying out an invert operation of the characteristic so as to determine a driving amplitude corresponding to a

certain light intensity, and storing the result; and timing correcting means for correcting a timing of the modulated signal in accordance with a light intensity level of the laser beam, in the characteristic inverting means storing a driving amplitude for making a desired light intensity output, the light intensity of the laser beam being directly controlled during a change by investigating a necessary driving amplitude, and further, the resultant regenerative signal of the optical information recording medium being smoothly variable in a recording range where a recording light intensity changes so that the optical information recording medium can be safely reproduce. Therefore, a nonlinearity of the optical modulator is corrected, and a changeover of a proper pit edge depending upon an intermediate recording level is selected, and further, a difference in light intensity between two recording levels is made larger. Whereby it is possible to record a range of smooth change between two recording levels, and to realize a desirably smooth change between two watermark patterns. Further, a difference between two light intensities is made large, and thereby, it is possible to record a more clear "watermark ~~patter~~ pattern" on the optical disk.--

Please amend the paragraph beginning at page 90, line 5, as follows:

--Further, the aforesaid embodiment has described the case where the modulation signal is sampled into 13, and then, a change ~~patter~~ pattern is detected; however, the present invention is not limited to this embodiment. As the necessity arises, the number of sampling may be increased, and thereby, it is possible to make an application to a long recording information pattern.--